Alexander Hay
ME333 - Mechatronics
Chapter 3, 1-9

1)

	Virtual Address	Physical Address	Memory Region	Sub Region
a)	0x80000020	00000020	KSEG0	RAM
b)	0xA0000020	00000020	KSEG1	RAM
c)	0xBF800001	1F800001	KSEG1	SFR
d)	0x9FC00111	1FC00111	KSEG0	boot
e)	0x9D001000	1D001000	KSEG0	flash

2) _RESET_ADDR = 0xBD001970

3) a)

PORTB	31/15 - 16/0
PORTC	31/15 - 28/12; 20/4 - 17/1
PORTD	31/15 - 16/0
PORTE	25/9 - 16/0
PORTF	29/13 - 28/12; 24/8; 21/5 - 16/0
PORTG	31/15 - 28/12; 25/9 - 22/6; 19/2 - 16/0

Pin 60

b)

31/15 – 29/13	unimplemented
28/12 –	MVEC
27/11 –	unimplemented
26/10 – 24/8	TPC
23/7 – 21/5	unimplemented
20/4 – 16/0	INT#EP

4) 9 LATFbits.LATF1 = 0; // on the NU32, so "high" (1) = "off" and "low" (0) = "on"

5) n/a

6)

a)	BF805000	1000
b)	BF886080	F000

7) Because it is including libraries and functions referenced in the program.

8) a)

```
512     and     a0,a0,0
513     and     a1,a1,0
514     la      t0,_main_entry
515     jr      t0
516     nop
517
518     .end _startup
```

b)

```
bf88cb3c A     C2FIFOUA31INV
bf88cb40 A     C2FIFOCI31
bf88cb44 A     C2FIFOCI31CLR
bf88cb48 A     C2FIFOCI31SET
bf88cb4c A     C2FIFOCI31INV
```

c)

```
struct {
        uint32_t SPIRBF:1;
        uint32_t SPITBF:1;
        uint32_t :1;
        uint32_t SPITBE:1;
        uint32_t :1;
        uint32_t SPIRBE:1;
        uint32_t SPIROV:1;
        uint32_t SRMT:1;
        uint32_t SPITUR:1;
        uint32_t :2;
        uint32_t SPIBUSY:1;
        uint32_t :4;
        uint32_t TXBUFELM:5;
        uint32_t :3;
        uint32_t RXBUFELM:5;
};
```

The sizes line up with Table 14-4: SPI2, SPI3, and SPI4 Register Map